

CLAIMS

What is claimed is:

1. A load transfer element comprising:
 - a main body defining a longitudinal axis;
 - a first reaction surface disposed on said main body; and
 - a second reaction surface disposed on said main body and formed generally opposite said first reaction surface, said second reaction surface operable to receive a first load and transmit said first load across said main body generally along said longitudinal axis to said first reaction surface.
2. The load transfer element of claim 1 wherein said main body further comprises an attachment arm, said attachment arm operable to fixedly attach said main body to an external structure.
3. The load transfer element of claim 2 wherein said attachment arm is integrally formed with said main body, said attachment arm adapted to fixedly hold said attachment arm to said external structure.
4. The load transfer element of claim 2 wherein said main body includes an upper planar surface and a lower planar surface, said upper planar surface formed opposite said lower planar surface.

5. The load transfer element of claim 4 wherein said lower surface extends substantially perpendicularly to said attachment arm along said longitudinal axis.

6. The load transfer element of claim 4 wherein said main body includes an arcuate surface disposed at a junction of said upper and lower surfaces.

7. The load transfer element of claim 1 wherein said main body is formed from a rigid material.

8. A door assembly comprising:

- an inner panel;
- an outer panel fixedly attached to said inner panel, said inner and outer panels defining an interstitial space therebetween; and
- a load transfer element disposed within said interstitial space, said load transfer element comprising:
 - a main body defining a longitudinal axis;
 - a first reaction surface disposed on said main body and abutting said inner panel; and
 - a second reaction surface disposed on said main body and formed generally opposite said first reaction surface, said second reaction surface proximate and spaced from said outer panel by a predetermined distance;

whereby said second reaction surface is operable to receive a first load from said outer panel after said outer panel has moved the predetermined distance and to transmit said first load across said main body generally along said longitudinal axis to said first reaction surface and said door inner panel.

9. The door assembly of claim 8 wherein said main body further comprises an attachment arm, said attachment arm adapted to fixedly attach said main body to said inner panel.

10. The door assembly of claim 9 where in said attachment arm is integrally formed with said main body, said attachment arm adapted to fixedly hold said attachment arm to said inner panel.

11. The door assembly of claim 9 wherein said main body includes an upper planar surface and a lower planar surface, said upper planar surface formed opposite said lower planar surface.

12. The door assembly of claim 11 wherein said lower surface extends substantially perpendicularly to said attachment arm along said longitudinal axis.

13. The door assembly of claim 11 wherein said main body includes an arcuate surface disposed at a junction of said upper and lower surfaces.

14. The door assembly of claim 8 wherein said load transfer element is formed from a rigid material.

15. A vehicle comprising:

a door aperture having a first structural member and a second structural member;

a door matingly received by said door aperture and supported by said first and second structural members, said door comprising:

an inner panel overlying said first and second structural members;

an outer panel fixedly attached to said inner panel, said inner and outer panels defining an interstitial space therebetween; and

a load transfer element disposed generally between said outer panel and said second structural member, said load transfer element comprising:

a main body defining a longitudinal axis;

a first reaction surface disposed on said main body and formed proximate said inner panel; and

a second reaction surface disposed on said main body and formed generally opposite said first reaction surface, said second reaction surface disposed proximate said outer panel,

whereby said load transfer element is operable to transfer a load from said outer panel to one of said inner panel and said first and second structural members.

16. The vehicle of claim 15 wherein said first reaction surface abuts said door inner panel, said first reaction surface operable to transmit a force to said inner panel.

17. The vehicle of claim 15 wherein said load transfer element further comprises an attachment arm, said attachment arm adapted to fixedly attach said main body to said inner panel.

18. The vehicle of claim 15 further comprising a condition sensor, wherein said load transfer element is configured to activate said condition sensor for transmitting a signal to deploy an air bag when the load exceeds a predetermined magnitude.

19. The vehicle of claim 18 wherein said sensor is disposed on said second structural member.